Annexure 1 - Claims Rewritten to Show Amendments

Please amend the claims to read as follows:

1. (Currently Amended) [[A]] <u>An apparatus for assisting</u> ~~method of using a computing machine having a memory to assist~~ a human expert ~~in reducing predictable variations in the depth of anesthesia~~ during the administration of a medical anesthesia drug to a patient, the <u>apparatus</u> ~~method~~ comprising ~~the step of solving in the computing machine the formula~~:

<u>a computing machine having:</u>

<u>an input that receives data corresponding to a plurality of coefficients C_1, C_2, C_3, as well as time periods τ_p (initial time delay after infusion of the anesthesia drug) and T_p (time constant representing speed of response), the time periods being initially determined in response to an assessment of the patient by the human expert;</u>

<u>a memory that stores the plurality of coefficients C_1, C_2, C_3, and the time periods τ_p and T_p;</u>

<u>a processor that solves the formula:</u>

$$y = f_p(x) = C_1 \frac{x}{x_1} \Phi_1(x) + C_2 \frac{x}{x_2} \Phi_2(x) + C_3 \frac{x}{x_3} \Phi_3(x)$$

<u>and</u>

<u>a display that displays resulting data to the human expert</u>

~~where the coefficients C_1, C_2, C_3, as well as the time periods τ_p (initial time delay after drug infusion) and T_p (time constant representing speed of response) are initiated by assessment of a human expert and entered into the memory of the computing machine~~.

2. (Currently Amended) The apparatus ~~method~~ of claim 1, where ~~the human expert performs the step of assigning~~ a relative value between *1* and *10* is assigned to represent the patient's response to infusion of the anesthesia drug, where *1* represents the slowest and *10* represents the fastest, and ~~the relative value is entered into~~ the memory of the computing machine is configured to store the relative value.

3. (Currently Amended) The apparatus ~~method~~ of claim 1, wherein typical set points are selected to be ~~approximately~~ $x_1 \cong 50$, $x_2 \cong 100$, and $x_3 \cong 150$, and are stored in ~~the typical set points being entered into~~ the memory of the computing machine.

4. (Currently Amended) A method of using a computing machine to assist a human expert in the administration of anesthesia to a patient, the computing machine having a memory to determine a model that corresponds to a predicted response of [[a]] the patient to anesthesia drug delivery, the method comprising the steps of:

~~first~~ determining an initial time delay τ_p after drug infusion for the patient;

~~first~~ entering a time delay value corresponding to the initial time delay τ_p into the memory of the computing machine;

~~second~~ determining a time constant T_p representing speed of response of the patient;

~~second~~ entering a time constant value corresponding to the time constant T_p into the memory of the computing machine; ~~and~~

~~third~~ determining a nonlinear static function f_p representing the sensitivity of the patient to a dosage of the anesthesia drug at steady state; and

displaying data corresponding to a solution of the formula:

$$\underline{y = f_p(x) = C_1 \frac{x}{x_1}\Phi_1(x) + C_2 \frac{x}{x_2}\Phi_2(x) + C_3 \frac{x}{x_3}\Phi_3(x)}$$

5. (Currently Amended) The method of claim 4, wherein said steps of ~~first, second, and third~~ determining an initial time delay τ_p, determining a time constant T_p, and determining a nonlinear static function f_p, are implemented in a Weiner structure that is computed in the computing machine.

6. (Currently Amended) The method of claim 4, wherein said steps of ~~first, second, and third~~ determining an initial time delay τ_p, determining a time constant T_p, and determining a nonlinear static function f_p, are implemented in a Hammerstein structure that is computed in the computing machine.

7. (Currently Amended) Apparatus for determining a predicted response of a patient to the administration of an anesthesia drug, the apparatus ~~system~~ comprising:

a first memory for storing patient dynamics information relating to the infusion of a bolus dosage of anesthesia drug, said first memory having a first output for producing a first output signal corresponding to a first anesthesia level;

a second memory for storing patient dynamics information relating to the infusion of a titrated dosage of anesthesia drug, said second memory having a second output for producing a second output signal corresponding to a second anesthesia level;

a third memory for storing patient dynamics information relating to the patient's predicted response to events of surgical stimulation, said third memory having a third output for producing a third output signal corresponding to an anesthesia effect level;

a signal combiner arrangement for receiving the first and second output signals and the anesthesia effect level, and producing at an output thereof a combined anesthesia effect signal;

a limiter coupled to the output of said signal combiner for establishing maximum and minimum values of the combined anesthesia signal; ~~and~~

a processor for generating a virtual anesthesia monitor that produces ~~for producing~~ an anesthesia value responsive to the combined anesthesia signal; and

a display that displays resulting data.

8. (Currently Amended) The apparatus of claim 7, wherein the first [[,]] and second ~~, and third~~ anesthesia levels correspond to respective bi-spectrum ~~BIS~~ levels of the patient's electroencephalogram signal, the anesthesia effect level is a bi-spectrum ~~BIS~~ level, and the combined anesthesia signal is a combined bi-spectrum ~~BIS~~ level signal.

9. (Currently Amended) The apparatus of claim 8, wherein the virtual anesthesia monitor is a virtual bi-spectrum ~~BIS~~ monitor for producing a bi-spectrum ~~BIS~~ value responsive to the combined bi-spectrum ~~BIS~~ signal.

10. (Currently Amended) The apparatus of claim 7, wherein there is further provided a source of known ~~unpredictable disturbances for producing~~ noise to compensate for an unpredictable disturbances signal, and said signal combiner arrangement is arranged to receive the unpredictable disturbances signal and the combined anesthesia effect signal is responsive to the unpredictable disturbances signal.